

Expert System for Organizing Conferences

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Abstract:

Artificial Intelligence is one of the rapidly growing technology, many AI systems are coming into existence. Expert systems is one of the AI system which are used to provide solutions or giving advices to a particular problems especially in organizing various problems such as product management, Organizing conferences or workshops. The expert systems are able to give clarifications and advices that how they can reach to a particular solution. It provides the answers with the help of knowledge base that are acquired from an expert in those fields.

Introduction:

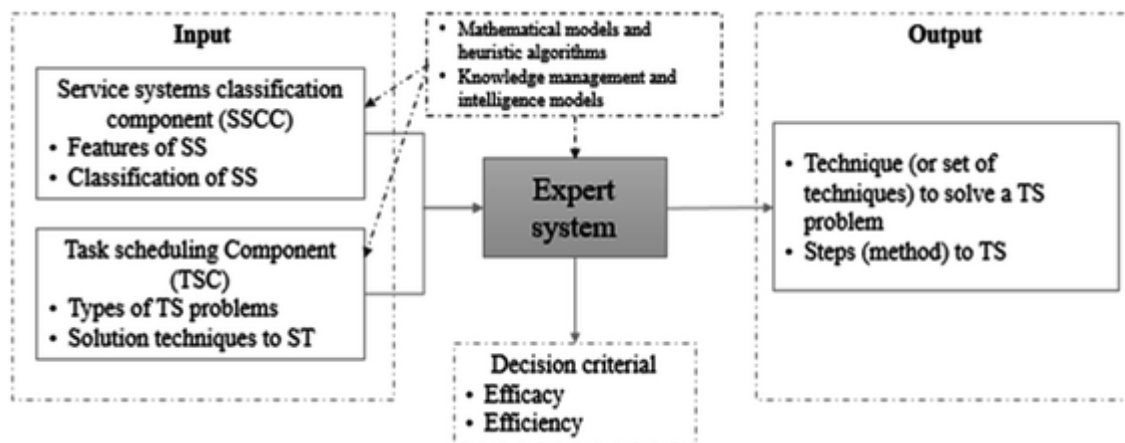
An expert system is a computing system that simulates the decision-making abilities of a human expert. Instead of utilizing standard procedural code, expert systems are designed to solve complex problems by reasoning through bodies of knowledge, which are most typically represented as if-then rules. In the 1970s, expert systems were developed, and in the 1980s, they became increasingly popular.

One of the first examples of completely sequential artificial intelligence software was expert systems. In the knowledge base, rules and information are represented. By applying the rules to existing data, the inference engine generates new facts. Inference engines can be enhanced with explanation and debugging features. The conference's purpose is to investigate, develop, improve, and promote excellent planning

1. Problem Specification:

As technology is growing day by day, more Artificial Intelligence systems are coming into existence that is used to solve problems irrespective of fields. This paper deals with the expert system that is used to organize the conferences which acquire knowledge from the human experts and stored in a knowledge base. They are also able to give advice to the users as well as provide explanations to them about how they can reach a particular solution or advice to the problem. The expert system gives the solution or advice that how to organize a conference, workshop, or meeting.

1.1 Dataset



1.2 Problem Analysis

Consider an example of Organizing a conference, three major activities include the pre-conference activities, in-conference activities, and post-conference activities.

The organizers and students will need to register for the session as a part of the pre-conference activity. Every student can register for only one session at a time as there is a limited number of seats available the registrations need to be utilized carefully because we can't afford the more resource persons to administrate the conference. We are using the Depth First Search algorithm to run the conference for groups of more than 20 people

To complete conference activities, all students are required. We are using backtracking with Depth First Search to track the person to stay at the conference until it concludes.

2. Design and Milestones

2.1 Proposed Method:

To address the existing issues, we proposed a system that will help to solve the issues that are discussed above. In this, we are using the Mycin Expert system which uses backward chaining storage.

Backward Chaining is a type of storage that is used by the Expert System to answer the questions – Why this has happened. This strategy is widely used to find out the root cause or what is the reason behind it, considering what has already happened. Below is the figure illustrating backward chaining.

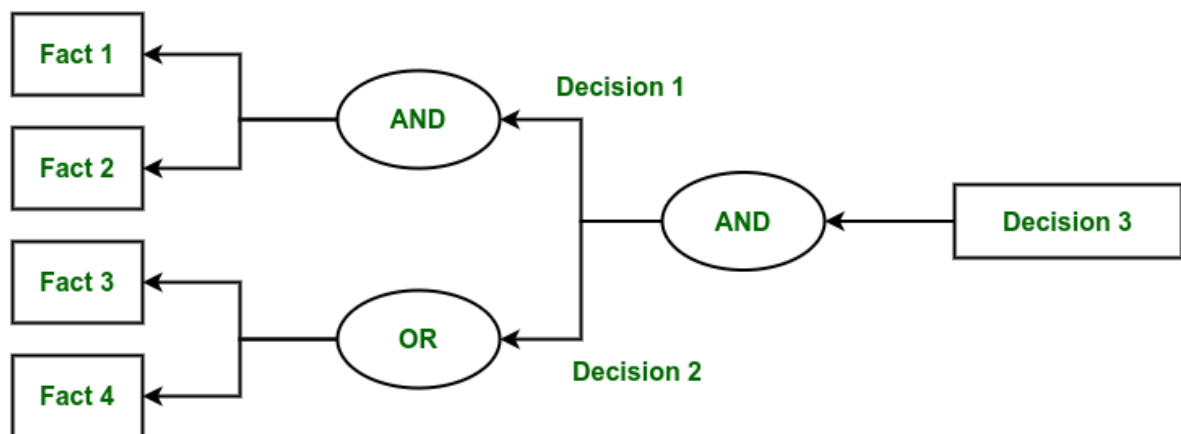


Fig 1: Backward Chaining

2.2 Data Processing:

The data is processed from non-expert user to Knowledge from an expert user. Below is the figure illustrating how the data is processed through various phases.

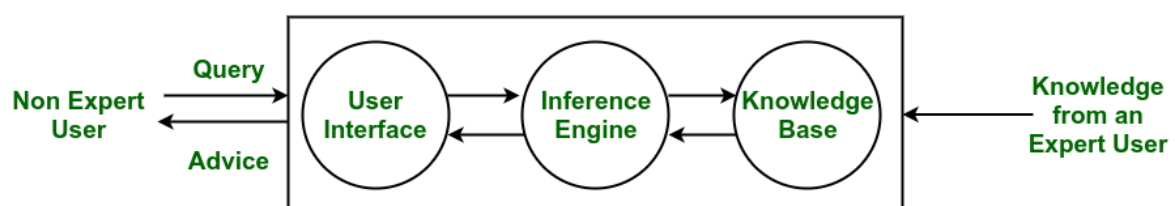


Fig 2: Architecture of an Expert System

Expert system consists of five components namely

1. Knowledge Base
2. Inference Engine
3. Knowledge Acquisition and Learning Module
4. User Interface
5. Explanation Module

Knowledge Base:

Knowledge Base majorly represents the facts and rules. It is a storage container that consists of Knowledge about a particular domain as well as rules that are used to solve the problem, procedures and the intrinsic data relevant to that particular domain.

Inference Engine:

The inference engine fetches the knowledge from the knowledge base, interprets it, and finds a solution relevant to the user's problem. It acquires the rules from the knowledge base and applies the rules to the facts that are known to infer new facts. The inference engine also includes the explanation and debugging abilities.

Knowledge Acquisition and Learning Module:

This function allows the expert system to acquire more and more knowledge from various sources and store it in the knowledge base.

User Interface:

This module allows a non-expert user to interact with the expert system and find a solution to the problem.

Explanation Module:

It helps the expert system to give an explanation to the user about how the expert system reached a particular conclusion

2.3 Experimental Settings

A variety of techniques have been used to represent such a heterogeneous domain: frame-like object structures, conceptual taxonomies, inheritance mechanisms, rules, message passing, active values and LISP functions. The

authors stress that rules play only a subordinate role. They are used with logical interpretation:

IF <premisses> THEN <conclusion>

Production rules as in OPS5, on the other hand, have procedural semantics:

IF <pattern> THEN DO <actions>

Such rules are deemed unfit for representing static domain knowledge in SICONFEX - much in accord with our earlier remarks concerning XCON.

2.4 Validation Methods:

Validating expert system plays a major role. Without validating, the expert systems might cause very costly errors. There are various methods to validate the expert systems.

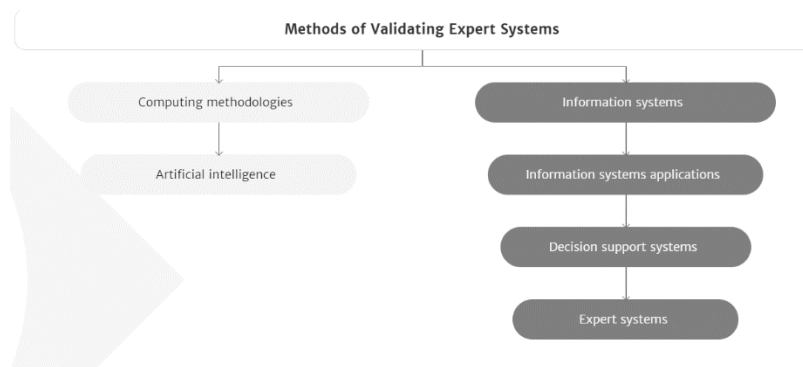


Fig 3: Methods of Validating Expert Settings

Features of Expert System:

1. High level Expert System
2. Right on Time Reaction
3. Good Reliability
4. Flexible
5. Effective mechanism

Limitations of Expert System:

1. Do not have human-like decision-making power.
2. Cannot possess human capabilities.

3. Cannot produce correct result from less amount of knowledge.
4. Requires excessive training.

Future Work

According to many experts, faster than the majority of us think or are prepared for. “We will have both the hardware and the software to achieve human-level artificial intelligence with the broad suppleness of human intelligence including our emotional intelligence by 2029.” If that sounds like something from a scary movie (“Terminator” may come to mind). It’s not to worry; such super machines will also have morals and respect us as their creators (the people in scary movies rarely think that anything bad will happen to them either). He also believes that humans themselves will be smarter, healthier, and more capable in the near future by merging with our technology. For example, tiny robots implanted in our brains will work directly with our neurons to make us smarter (this may call to mind some other movies). AI began as an attempt to answer some of the most fundamental questions about human existence by understanding the nature of intelligence, but it has grown into a scientific and technological field affecting many aspects of commerce and society. Even as AI technology becomes integrated into the fabric of everyday life, AI researchers remain focused on the grand challenges of automating intelligence. Work is progressing on developing systems that converse in natural language, that perceives and responds to their surroundings, and that encodes and provides useful access to all of human knowledge and expertise.

References:

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